

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,789,310 B1
DATED : September 14, 2004
INVENTOR(S) : Kanji Hata et al.

Page 1 of 6

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 9,

Line 46, replace Claim 1 with the following

1. **A component mounting apparatus comprising:**

first and second component supply tables for accommodating a plurality of components, said first and second component supply tables being arranged on both sides of a board transfer path;

a first rotary member having first nozzles, wherein said first rotary member is rotatable such that upon rotation of said first rotary member said first nozzles simultaneously rotate for successively picking up first components at said first component supply table by suction, thereafter said first rotary member can be moved to a board positioned at a board mounting position, and the picked-up first components can be successively mounted onto the board while said first rotary member is moved in first and second directions which are perpendicular to each other, with the first direction being perpendicular to the board transfer path, and the second direction being located along the board transfer path; and

a second rotary member having second nozzles, wherein said second rotary member is rotatable such that upon rotation of said second rotary member said second nozzles simultaneously rotate for successively picking up second components at said second component supply table by suction, thereafter said second rotary member can move to the board positioned at the board mounting position, and the picked-up second components can be successively mounted onto the board while said second rotary member moves in third and fourth directions which are perpendicular to each other, with the third direction being parallel to the first direction, and the fourth direction being parallel to the second direction but not necessarily the same as the second direction,

wherein each of said first and second rotary members is independently moveable between a respective one of said first and second component supply tables and the board when the board is at the board mounting position, and said first rotary member is capable of mounting picked-up components onto the board while said second rotary member successively sucks to pick up components at said second component supply table.

Column 10,

Line 23, replace Claim 2 with the following

2. **The component mounting apparatus as claimed in claim 1, wherein the first, second, third and fourth directions are each in a plane that is parallel to the board transfer path.**

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,789,310 B1
DATED : September 14, 2004
INVENTOR(S) : Kanji Hata et al.

Page 2 of 6

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 10 (cont'd),

Line 28, replace Claim 3 with the following

3. The component mounting apparatus as claimed in claim 2, further comprising a controller for mutually controlling said first and second rotary members in accordance with a timing at which, when said first rotary member carries out a component picking-up operation for picking-up components from said first component supply table, said second rotary member carries out a component mounting operation for mounting picked-up components onto the board when the board is at the board mounting position.

Line 37, replace Claim 4 with the following

4. The component mounting apparatus as claimed in claim 1, further comprising a controller for mutually controlling said first and second rotary members in accordance with a timing at which, when said first rotary member carries out a component picking-up operation for picking-up components from said first component supply table, said second rotary member carries out a component mounting operation for mounting picked-up components onto the board when the board is at the board mounting position.

Line 40, replace Claim 5 with the following

5. The component mounting apparatus according to claim 1, further comprising a board positioning section for positioning the board at the board mounting position such that the board is not moved during mounting of components thereon via said first and second rotary members.

Line 44, replace Claim 6 with the following

6. The component mounting apparatus according to claim 1, wherein said first and second component supply tables are to accommodate different kinds of components.

Line 53, replace Claim 7 with the following

7. The component mounting apparatus according to claim 1, wherein at least one of said first and second component supply tables is capable of continuously supplying components.

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,789,310 B1
DATED : September 14, 2004
INVENTOR(S) : Kanji Hata et al.

Page 3 of 6

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 10 (cont'd)

Line 57, replace Claim 8 with the following

8. The component mounting apparatus as claimed in claim 1, wherein said first rotary member is rotatable about a horizontal axis, and said first nozzles are mounted on said first rotary member so that each of said first nozzles can be selectively and sequentially directed downwardly to suck a component from said first component supply table and mount the sucked component onto the board when the board is at the board mounting position.

Line 60, replace Claim 9 with the following

9. A component mounting apparatus comprising:
first and second component supply tables for accommodating a plurality of components, said first and second component supply tables being arranged on opposite sides of a board mounting position, wherein a board transfer path along which a board is transferred extends between said first and second component supply tables;

a first rotary member having first nozzles, wherein said first rotary member is rotatable such that upon rotation of said first rotary member said first nozzles simultaneously rotate for successively picking up first components at said first component supply table and thereafter successively mounting the plural picked-up first components onto a board, positioned at the board mounting position, while moving in first and second directions which are perpendicular to each other, with the first direction being perpendicular to the board transfer path, and the second direction being located along the board transfer path; and

a second rotary member having second nozzles, wherein said second rotary member is rotatable such that upon rotation of said second rotary member said second nozzles simultaneously rotate for successively picking up second components at said second component supply table and thereafter successively mounting the picked-up second components onto the board, positioned at the board mounting position, while moving in third and fourth directions which are perpendicular to each other, with the third direction being parallel to the first direction, and the fourth direction being parallel to the second direction but not necessarily the same as the second direction,

wherein each of said first and second rotary members is independently movable between a respective one of said first and second component supply tables and the board when the board is at the board mounting position, and

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,789,310 B1
DATED : September 14, 2004
INVENTOR(S) : Kanji Hata et al.

Page 4 of 6

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 10 (cont'd),

wherein said first rotary member is capable of mounting picked-up components onto the board, at the board mounting position, while said second rotary member successively picks up components, via said second nozzles, at said second component supply table.

Line 63, replace Claim 10 with the following

10. The component mounting apparatus according to claim 9, wherein said first and second component supply tables are to accommodate different kinds of components.

Line 66, replace Claim 11 with the following

11. The component mounting apparatus according to claim 9, wherein at least one of said first and second component supply tables is capable of continuously supplying components.

Column 11,

Line 7, replace Claim 12 with the following

12. **The component mounting apparatus as claimed in claim 9, wherein said first rotary member is rotatable about a horizontal axis, and said first nozzles are mounted on said first rotary member so that each of said first nozzles can be selectively and sequentially directed downwardly to suck a component from said first component supply table and mount the sucked component onto the board when the board is at the board mounting position.**

Line 52, replace Claim 13 with the following

13. **A component mounting apparatus comprising:**

first and second component supply tables for accommodating a plurality of components, said component supply tables being arranged on both sides of a board transfer path;

a first rotary member having first nozzles, wherein said first rotary member is rotatable such that upon rotation of said first rotary member said first nozzles simultaneously rotate for successively picking up first components at said first component supply table and thereafter successively mounting the picked-up first components onto a board that is positioned at a board mounting position, said first rotary member being movable in first and second directions which are perpendicular to each other, with the first direction being perpendicular to the board transfer path, and the second direction being along the board transfer path; and

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,789,310 B1
DATED : September 14, 2004
INVENTOR(S) : Kanji Hata et al.

Page 5 of 6

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 11 (cont'd.)

a second rotary member having second nozzles, wherein said second rotary member is rotatable such that upon rotation of said second rotary member said second nozzles simultaneously rotate for successively picking up second components at said second component supply table and thereafter successively mounting the picked-up second components onto the board, positioned at the board mounting position, while said second rotary member moves in third and fourth directions which are perpendicular to each other, with the third direction being perpendicular to the board transfer path, and the fourth direction being along the board transfer path,

wherein each of said first and second rotary members is independently movable between a respective one of said first and second component supply tables and the board when the board is at the board mounting position, and

wherein said first rotary member is capable of mounting picked-up first components onto the board, at the board mounting position, while said second rotary member successively picks up components at said second component supply table.

Line 55, replace Claim 14 with the following

14. The component mounting apparatus according to claim 13, further comprising a board positioning section for positioning the board at the board mounting position such that the board is not moved during mounting of components thereon by said first and second rotary members.

Line 58, replace Claim 15 with the following

15. The component mounting apparatus as according to claim 13, wherein each of said first and second rotary members is rotatable about a horizontal axis, and wherein said first and second nozzles are positioned, respectively, on said first and second rotary members at regular intervals about the horizontal axis.

Column 12,

Line 1, replace Claim 16 with the following

16. The component mounting apparatus according to claim 13, wherein said first and second component supply tables are to accommodate different kinds of components.

Line 41, replace Claim 17 with the following

17. The component mounting apparatus according to claim 13, wherein at least one of said first and second component supply tables is capable of continuously supplying components.

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,789,310 B1
DATED : September 14, 2004
INVENTOR(S) : Kanji Hata et al.

Page 6 of 6

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

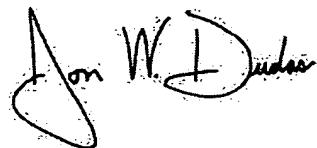
Column 12 (cont'd),

Line 44, replace Claim 18 with the following

18. **The component mounting apparatus as claimed in claim 13, wherein said first rotary member is rotatable about a horizontal axis, and said first nozzles are mounted on said first rotary member so that each of said first nozzles can be selectively and sequentially directed downwardly to suck a component from said first component supply table and mount the sucked component onto the board when the board is at the board mounting position.**

Signed and Sealed this

Fourth Day of October, 2005



JON W. DUDAS
Director of the United States Patent and Trademark Office